

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 08563-0139	FOR FURTHER ACTION <div style="display: flex; justify-content: space-between; font-size: small;"> see Form PCT/ISA/220 as well as, where applicable, item 5 below. </div>	
International application No. PCT/US04/39610	International filing date (day/month/year) 24 November 2004 (24.11.2004)	(Earliest) Priority Date (day/month/year) 26 November 2003 (26.11.2003)
Applicant DENTSPLY INTERNATIONAL INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box No. II)

3. ☐ Unity of invention is lacking (See Box No. III)

4. With regard to the title,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the abstract,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 1



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G02B 27/02

US CL : 40/361

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 40/361,362,366,367; 362/33

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
None

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
None

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,118,654 A (Ohta et al.) 03 October 1978 (03/10/1978), see figures 1 and 2.	1-12 and 15-20
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Y		4,10,13,14
Y	JP 07-306378 A (Yasushi et al.) 21 November 1995 (21/11/1995), see figure 1.	1-20
Y	US 4,510,708 A (Pokrinchak) 16 April 1985 (16/04/1985), see figures 6 and 7.	13 and 14
Y	US 5,692,818 A (Kitagawa) 02 December 1997 (02/12/1997), see figure 1.	1-20
Y	US 6,311,419 A (Inbar) 06 November 2001 (06/11/2001), see figures 3a-3c.	1-20



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

Date of the actual completion of the international search

14 June 2005 (14.06.2005)

Date of mailing of the international search report

22 JUL 2005

Name and mailing address of the ISA/US

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PATENT COOPERATION TREATY

From the
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PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference 08563-0139		Date of mailing (day/month/year) 22 JUL 2005
FOR FURTHER ACTION See paragraph 2 below		
International application No. PCT/US04/39610	International filing date (day/month/year) 24 November 2004 (24.11.2004)	Priority date (day/month/year) 26 November 2003 (26.11.2003)
International Patent Classification (IPC) or both national classification and IPC IPC(7): G02B 27/02 and US Cl.: 40/361		
Applicant DENTSPLY INTERNATIONAL INC.		

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

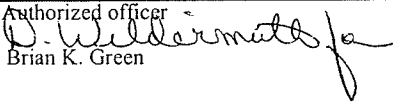
2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer  Brian K. Green Telephone No. (571) 272-6644
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Box No. 1 Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ in written format

☐ in computer readable form

c. time of filing/furnishing

☐ contained in international application as filed.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>5-8,11,13,14,16-20</u>	YES
	Claims <u>1-4,9,10,12, and 15</u>	NO
Inventive step (IS)	Claims <u>None</u>	YES
	Claims <u>1-20</u>	NO
Industrial applicability (IA)	Claims <u>1-20</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Please See Continuation Sheet

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

V. 2. Citations and Explanations:

Claims 1-4,9,10,12, and 15 lack novelty under PCT Article 33(2) as being anticipated by Ohta et al. (U.S. Patent No. 4,118,654).

Ohta et al. teaches the use of a light control system including an emitter (one of the light sources 114a), a detector (117), and a microprocessor (116) configured to control a light in response to a change in the detected emission resulting from one of an insertion of a film between the emitter and the detector and a removal of a film. In regard to claims 4 and 10, the system includes a manual control (118). In regard to claim 15, the device of Ohta et al. would inherently operate as defined in these steps.

Claims 5-8,11, and 16-20 lack an inventive step under PCT Article 33(3) as being obvious over Ohta et al.

In regard to claims 5-7 and 11, the applicant discloses in the specification that any type of emitter and detector can be used. Therefore the type of emitter and detector used is considered to be a matter of design choice. In regard to claim 8, the amount of light passing through the film would indicate the film type, i.e. the microprocessor would be capable of determining the type of film based upon the amount of light sensed by the detector (117). In regard to claims 16-20, the microprocessor would have to compare the value of light received from the detector (117) with a particular value and would also have to have ranges within which the intensity of light would be changed accordingly.

Claims 13 and 14 lack an inventive step under PCT Article 33(3) as being obvious over Ohta et al. in view of Pokrinchak (U.S. Patent No. 4,510,708).

Ohta et al. discloses the applicant's basic inventive concept except for including rollers on the holder to help in holding the film. Pokrinchak shows in figures 6 and 7 the idea of providing the holder with balls (41) and a spring biasing device (42) to help in holding a film. In view of the teachings of Pokrinchak it would have been obvious to one in the art to modify Ohta et al. by providing the holder with balls and a biasing member since this would allow the film to be held in a more secure manner.

Claims 1-3,5-9,11,12, and 15-20 lack an inventive step under PCT Article 33(3) as being obvious over Japan 07-306378 in view of Kitagawa (U.S. Patent No. 5,692,818) or Inbar (U.S. Patent No. 6,311,419).

Japan teaches the use of a light control system including photosensors (21,22) and a microprocessor (there is inherently a processor that must receive the information from the photosensor and send a signal to the light sources to either turn them on or off) configured to control a light in response to a change in the detected emission resulting from one of an insertion of a film and a removal of a film. Japan does not disclose whether the sensors include an emitter and a detector. Kitagawa shows in figure 1 the use of an emitter (106) and a detector (104) are conventional in the art. Inbar discloses in column 9, lines 45-53 that an emitter and detector on opposite sides of a film is known. In view of the teachings of Kitagawa or Inbar it would have been obvious to one in the art to modify Japan by making the sensors in the form of an emitter and a detector since this would allow the film to be detected in a better and more accurate manner. In

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

regard to claims 5-7 and 11, the applicant discloses in the specification that any type of emitter and detector can be used. Therefore the type of emitter and detector used is considered to be a matter of design choice. In regard to claim 8, the amount of light passing through the film would indicate the film type, i.e. the microprocessor would be capable of determining the type of film based upon the amount of light sensed by the detector. In regard to claims 15-20, the microprocessor would have to compare the value of light received from the detector with a particular value and would also have to have ranges within which the intensity of light would be changed accordingly.

Claims 4 and 10 lack an inventive step under PCT Article 33(3) as being obvious over Japan 07-306378 in view of Kitagawa or Inbar as applied to claims 1 and 9 above and further in view of Ohta et al. (U.S. Patent No. 4,118,654).

Japan 07-306378 in view of Kitagawa or Inbar disclose the applicant's basic inventive concept except for providing a manual dimming control. Ohta et al. shows in figures 1 and 2 the system includes a manual control (18 or 118). In view of the teachings of Ohta et al. it would have been obvious to one in the art to modify Japan by attaching a manual dimming control to the device since this would allow the intensity of light to be adjusted to a desired level in an easier and faster manner.

Claims 13 and 14 lack an inventive step under PCT Article 33(3) as being obvious over Japan 07-306378 in view of Kitagawa or Inbar as applied to claim 9 above and further in view of Pokrinchak (U.S. Patent No. 4,510,708).

Japan 07-306378 in view of Kitagawa or Inbar disclose the applicant's basic inventive concept except for including rollers on the holder to help in holding the film. Pokrinchak shows in figures 6 and 7 the idea of providing the holder with balls (41) and a spring biasing device (42) to help in holding a film. In view of the teachings of Pokrinchak it would have been obvious to one in the art to modify Japan by providing the holder with balls and a biasing member since this would allow the film to be held in a more secure manner.